

Weekly Report

December 4, 2016

1 Work

Line Field Based Trajectory Analysis

This week, I read some papers and materials about basic knowledge of flow field. I think the website below is very helpful. <http://shaddenlab.berkeley.edu/uploads/LCS-tutorial/FTLE-interp.html>

Semantic Trajectory

This week, I download author topic model matlab toolbox. After reading the description of toolbox and the paper of author topic model, I have a insight about the input and output. I also run the example case of author topic model. Next week, we can generate some trajectory data for this toolbox.

2 Plan for next week

- Generate trajectory for data Matlab toolbox of author topic model.
- Read some deep learning papers about graph.

3 Paper Reading

3.1 A Visual Analytics Approach for Understanding Reasons behind Snowballing and Comeback in MOBA Games

本文将MOBA游戏的数据用于可视分析，重点研究滚雪球和翻盘发生的原因和频率，因为以上两种游戏情况会对玩家体验造成影响，所以平衡他们之间发生的频率非常重要。这类数据，除了玩家的轨迹数据还有其他一系列金钱、打怪、摧毁建筑物等事件的记录。我认为本质上和人的轨迹数据是比较相近的，而游戏数据中能够抽取出来的数据更多也更容易。而目前关于人的数据，只有手机基站的，或者在某一个建筑物内通过传感器获取的数据。总体来说，人的语义数据比较少，行为上也是比较难以预测。

3.2 The Author-Topic Model for Authors and Documents

这篇文章讲解了 Author-Topic Model 的原理，分别分析了Topic、Author、Author-Topic Model之间的区别。

3.3 Probabilistic Author-Topic Models for Information Discovery

和上一篇文章基本是同样的作者，但是增加了许多Author-Topic Model的应用场景，如Topic Trends over Time、Topics and Authors for New Documents、Detecting the Most Surprising and Least Surprising Papers for an Author和AN AUTHOR-TOPIC BROWSER，这对于我们之后的应用也有一定的启发性。

3.4 A Lagrangian Particle Dynamics Approach for Crowd Flow Segmentation and Stability Analysis

文章利用流场的方法检测人群中的异常人流。这篇文章可以说从velocity field、flow map、finite time Lyapunov Exponent和LCS的概念都有一些介绍，虽然因为篇幅原因没有介绍太多细节，最后结合网上其他的一些资料学习了这些基本知识。最后文章通过对FTLE Field的切割合并进行对异常的检测。

3.5 Beyond Topology: A Lagrangian Metaphor to Visualize the Structure of 3D Tensor Fields

这篇文章是利用特征向量场对3D Tensor Fields的一种新的探索手段。然而非常多的细节不是很了解，还要继续向丁子昂师兄请教一下。

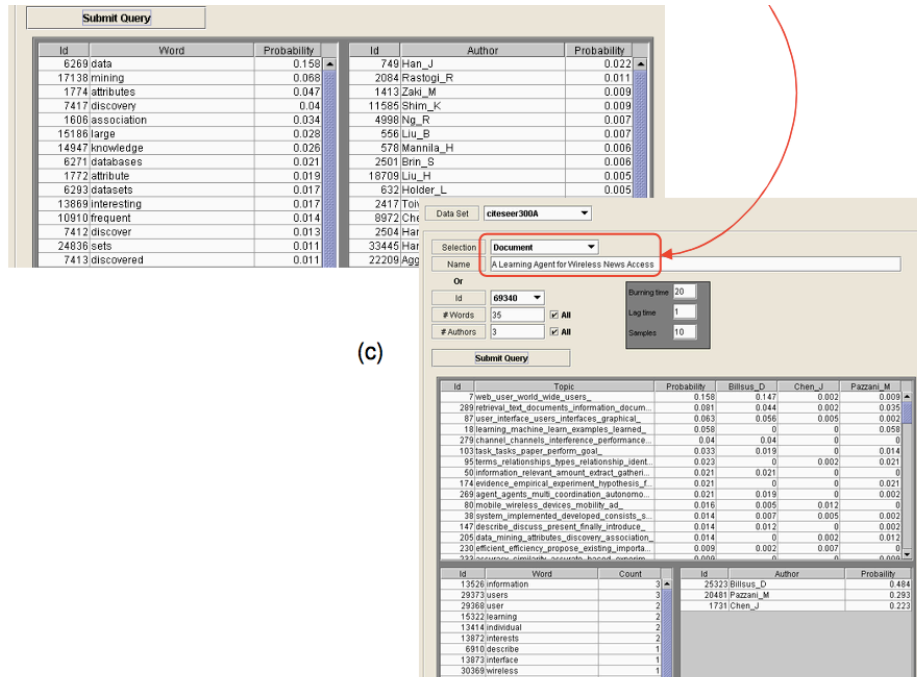


Figure 6: Examples of screenshots from the interactive query browser for the author-topic model with (a) querying on author Pazzani M, (b) querying on a topic (data mining) relevant to that author, and (c) querying on a particular document written by the author.

